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# A Qualitative Study of Malaysian Parents' Purchase Intention of Functional Weaning Foods using the Theory of Planned Behavior

Hajar Mohamad, Miranda Mirosa , Phil Bremer, and Indrawati Oey

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## ABSTRACT

**Background:** In this study, qualitative research methods were used to explore the behavioral, normative, and control beliefs underpinning parents' decisions to purchase functional weaning food products.

**Methods:** Seven focus groups were conducted with 44 parents in two locations in Malaysia (Sabah and Selangor). Based on the Theory of Planned Behavior theoretical framework, participants were prompted with questions about commercial weaning foods including functional weaning foods and shown several different products to stimulate discussion.

**Results:** Important behavioral beliefs (product attributes, babies' needs and suitability of the product, perceived healthiness), referrals and influences (family and friends' opinions and experiences, internet and social media influence, health professionals' recommendation and advice) and facilitating and inhibiting factors (trust and confidence, brand and cost, and product availability and options) were identified.

**Conclusions:** Overall functional weaning food purchase intention was influenced positively and negatively by behavioral, normative and control beliefs. To increase the awareness and commercial product knowledge on weaning food are suitable for their children, more information on functional weaning food products from reliable sources that can reach the parents and other potential customers is needed. Government, health professionals and manufacturers should work together to develop a better way to inform parents about functional weaning foods.

## KEYWORDS

Functional weaning food;  
focus group; Malaysia;  
theory of planned behavior

## Introduction

The functional food market is growing worldwide and new products including dairy products, beverages and juices, infant nutrition products, bread and baked goods, processed meats, cooking oils, and various prepared foods are continuously being launched (Bigliardi & Galati, 2013). Foods are increasingly being consumed not only to provide necessary nutrients and to satisfy hunger but also to prevent

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nutrition-related diseases and to improve physical and mental well-being (Menrad, 2003; Roberfroid, 2000b). The development and growth of functional foods are one of the most interesting areas of research and innovation in the food industry (Annunziata & Vecchio, 2011; Siro, Kapolna, Kapolna, & Lugasi, 2008). Functional food is also becoming a matter of increasing importance owing to the rising costs of healthcare and the steady increase in life expectancy (Kraus, 2015; Roberfroid, 2000a, 2000b).

Although a standard definition for functional foods is lacking (Hassan & Mustapha, 2010), they are typically characterized as foods that include components believed to improve overall health and well-being, reduce the risk of specific diseases, or minimize the effects of health concerns. Functional foods can include foods fortified with additional nutrients (fortified food); foods with added new nutrients or components not normally found in a particular food (enriched foods); foods from which a deleterious component has been removed, reduced or replaced with another substance with beneficial effects (altered foods); food where one of the components has been naturally enhanced (enhanced foods); foods naturally containing increased content of nutrients or components (non-altered foods) (Agri-Food Trade Service, 2009; Siro et al., 2008).

The market for functional packaged food was valued at \$159 billion globally in 2016, making it the largest category within the health and wellness industry (Mascaraque, 2016). The global market potential for functional foods and beverages by 2020 has been estimated to be worth \$192 billion (Kaur & Singh, 2017) with analysts forecasting the global functional foods and beverages market to grow at a CAGR of 7.80% during the period 2017–2021 (Research & Market, 2016). Functional ingredients which are becoming popular as more consumers start to become aware of their benefits include iron, calcium, minerals, vitamins, and folic acid, which provide benefits, such as enhancing general well-being, bone and joint health, immune support, brain development, and digestive health (Euromonitor, 2016).

### ***Weaning foods and functional weaning foods***

Although functional food products are becoming widely accepted, purchased, and consumed (Annunziata, Vecchio, & Kraus, 2015; Brečić, Gorton, & Barjolle, 2014; Siegrist, Shi, Giusto, & Hartmann, 2015; Van Der Zanden, Van Kleef, De Wijk, & Van Trijp, 2014), there are no published studies that focus on the attitudes or perceptions of parents toward functional weaning food products specifically. Previous studies on commercial weaning food have focused on comparisons of pre-prepared commercial infant feeding meals with home-cooked recipes (Carstairs, Craig, Marais, Bora, & Kiezebrink, 2016) or their composition and content (Carstairs et al., 2016; Garcia, McLean, & Wright, 2016; Zand et al., 2015). A qualitative study by Maslin et al. (2015) explored parental opinions in the United Kingdom of commercially produced baby food and found that the usage of

commercial infant foods is prevalent, and that mothers' perceptions of commercial infant foods were influenced by educational level and if they were first time or subsequent mothers and hence their previous experience of weaning.

While the use of home-prepared weaning foods is often recommended (Food Standards Agency, 2008), the use of commercial weaning foods as complementary food is widespread with infants generally starting to consume commercial products by the age of 6 months. Commercial weaning food is commonly purchased in both Western and Asian countries. In Malaysia, the sales of the commercial weaning food category in 2017, by value were MYR125.2 million (\$US 31.9 million) with an overall increase of 3.6% compared to 2016 (Euromonitor, 2017a). Though there is no specific data on sales of functional weaning food, a newly launched product in 2015 of a specific brand of dried weaning food that offered increased iron gained more sales compared to other brands due to aggressive marketing and was expected to see positive growth over the forecast period (Euromonitor, 2017b).

However, the development of functional food products can be very challenging for the food manufacturers, as they need to ensure that these products and ideas meet the expectations of the consumers (Menezes, Deliza, Chan, & Guinard, 2011; Urala & Lähteenmäki, 2007). In a review deciphering consumer behavior facets of functional foods, Kaur and Singh (2017) identified that focusing on specific functional foods will help improve the food industry's understanding of the market for value-added functional foods products and will help to identify appropriate strategies for product development and marketing and the development of programs promoting healthy nutrition. A greater understanding of Malaysian parent's beliefs and purchasing behavior regarding commercial weaning food, specifically functional weaning foods, will enable health practitioners and government to more effectively tailor their advice regarding this food category and inform industry product development and marketing strategies. Therefore, the aim of the current study was to use a qualitative approach to gain insights into parental purchasing behavior of commercially produced functional weaning foods, with the goal of understanding the factors underpinning their intentions to purchase. Using focus group discussions, parents' beliefs and attitudes as consumer were determined for the purpose of developing a survey instrument to test the generalizability of these opinions in a larger population sample.

## Methods

### *Study design*

The conceptual framework of Theory of Planned Behavior (TPB) (Ajzen, 1991) was applied in this study to help the researchers better understand the important factors influencing the intentions of parents in Malaysia when

purchasing functional weaning foods and help to articulate the analytical points to interpret parents' attitudes and beliefs. The TPB is widely utilized to predict an individual's likelihood of adopting a particular behavior and implies that an individual's intention to perform a behavior is influenced by one's attitude toward adopting the behavior, an evaluation of the subjective norms or social influence of others who may encourage/discourage such a behavior and an individual's perception of the level of control in their ability to adopt the behavior (Azjen, 1991). Shaping these attitudes are salient beliefs including behavioral beliefs (reflecting attitudes toward the behavior), normative beliefs (reflecting the social influences of others relevant to the behavior and an individual's motivation to comply with such an influence) and control beliefs (reflecting those beliefs which underlie the perceived level of ease or difficulty one might experience toward adopting the behavior) (Azjen, 1991).

The use of focus groups is a well-established approach and predominantly suited to the study of consumers' attitudes toward specific topics (Kitzinger & Barbour, 1999) as it allows a more abstract and in-depth exploration of issues instead of using less interactive methods, such as structured questionnaires (McKinley et al., 2005). Focus groups possess elements of both participant observation and individual interviews, while also maintaining their own uniqueness as a distinctive research method (Liamputtong, 2011). A focus group is essentially a group discussion focused on a single theme (Krueger & Casey, 2015; Stewart & Shamdasani, 2015) and the goal is to create a candid conversation that addresses, in depth, the selected topic (Bloomberg & Volpe, 2016). Focus groups are planned and structured but are also flexible tools (Liamputtong, 2011). Krueger and Casey (2015) list various uses of focus groups which are to (a) elicit a range of ideas, feelings and opinions; (b) understand differences in perspectives; (c) cover and provide insight into specific factors that influence opinions; and (d) seek ideas that emerge from the group. Therefore, this study used focus groups to understand different attitudes of parents by covering and gaining qualitative insights into factors that influence parents' purchasing beliefs on functional weaning food products.

A semi-structured focus group discussion guide was developed, which consisted of a list of questions and probes, relevant to the areas to be elucidated, based on the framework and influenced by the themes identified by examination of the relevant literature. It is important to note that this study did not seek to test the association of TPB components and purchase intention statistically as qualitative research, such as that conducted in our study does not lend itself to this sort of analyses. Rather, as aforementioned, the TPB was used simply as an underpinning framework to guide the development of the topic areas in focus group guide. Questions were designed to stimulate discussion about functional weaning food products. Additional probe questions were used to gain rich detailed information and to encourage participants to clarify or expand on

views expressed. The questions adapted from previous studies elicited information about behavioral beliefs for the positive and negative attributes of functional weaning foods (Imram, 1999; Kim, Reicks, & Sjoberg, 2003; Rah, Hasler, Painter, & Chapman-Novakofski, 2004); normative beliefs about the effects of information from different sources on parents purchase decision (Åstrom & Rise, 2001; Hamilton, Daniels, White, Murray, & Walsh, 2011; Kim et al., 2003; Nolan-Clark, Neale, Probst, Charlton, & Tapsell, 2011); control beliefs comprising barriers and facilitators related to purchasing of functional weaning foods (Åstrom & Rise, 2001; Kim et al., 2003) and the intention to purchase functional weaning foods in the future (Åstrom & Rise, 2001; Kim et al., 2003). The focus group discussion guide was reviewed by members of the research team to ensure the appropriateness of the topic of interest. To check protocols, clarity, constructs, and suitability prior to the main study in Malaysia, the English discussion guide was pre-tested with a focus group comprising of five native English-speaking parents from Dunedin, New Zealand (June 2016). The focus group discussion guide was produced in English and then translated into Malay through a consultative process of back-translation, ensuring that the translated guide captured the meaning of the guide in English (Birbili, 2000). In Malaysia, the focus groups were conducted using the native tongue of the participants. The focus group discussion guide is summarized in Table 1.

### **Research location and participant recruitment**

Based on Department of Statistics Malaysia (2016) data, from the total Malay population of 31.7 million, Selangor had the highest percentage of the population (19.9%) followed by Sabah (12.0%). Hence, these two states were selected as the locations to conduct the focus groups, with Selangor

**Table 1.** Focus Group Discussion Guide With Questions Derived From the Theory of Planned Behavior.

TPB component	Questions
Behavioral beliefs	<p>"What are the good things associated with functional weaning food comparing to regular commercial weaning foods?"</p> <p>"What are main attributes would be important to you if you wanted to purchase functional weaning foods?"</p>
Normative beliefs	<p>"What or who might influence your purchase decisions regarding functional weaning foods?"</p> <p>"Would people who are important to you approve of you purchasing functional weaning foods?"</p>
Control beliefs	<p>"How confident are you that you are making a good choice when you purchase functional weaning products?"</p> <p>"What are the factors or situations that currently make it difficult or easy to purchase functional weaning foods?"</p> <p>"Do you think you will be able to easily purchase functional weaning food regularly in the future if you wanted to?"</p>
Behavioral intentions	<p>"How likely or unlikely is it that you will purchase functional weaning foods in the next month?"</p>

representing one of the states in Peninsular Malaysia and Sabah representing the two states in East Malaysia. The first author's personal background in Selangor and Sabah enabled access to local universities and a private company for participant recruitment and staging of the focus groups.

Participants consisted of parents, who regularly purchase commercial weaning foods and had a child aged 3 years old or under, or expectant parents, who expected they would buy commercial weaning foods in the near future. Given the intent of focus groups is "not to infer but to understand, not to generalize but to determine the range, and not to make statements about the population but to provide insights about how people in the groups perceive a situation" (Krueger & Casey, 2015), randomization and prevention of social bias were not the primary factors in recruitment. A mix of recruitment methods was used included posting adverts at local universities and private companies as well using a more personal approach (a snowballing/word of mouth technique to recruit additional participants). This meant that the resulting focus group participants provided enough diversity to allow for contrasting opinions while also providing the homogeneity that often characterizes focus groups and allows for the ease and openness of honest conversation. All participants were screened to confirm they met the inclusion criteria. While both fathers and mothers were eligible for inclusion, only one parent from a family could participate. All parents were invited to participate in the study via a phone call to arrange session times and location. The study was ethically approved by the University of Otago Human Ethics Committee (Reference number: 16/083).

### ***Focus group procedure***

A total of seven focus groups were conducted in Sabah ( $n = 5$ ) and Selangor ( $n = 2$ ) between July and August 2016. Schwartz et al. (2013) reported that sample size in focus group is usually decided by the concept of "saturation," which refers to the number of observations at which no new information. The seventh focus group elicited no new information and therefore theoretical saturation was assumed to have been reached. The focus groups were facilitated by one moderator with the help of an assistant. Before the session began, all participants were provided with an information form outlining the study procedure and a consent form. The moderator explained her role in facilitating the discussion, the purpose of the focus group and gave examples of core topic areas of interest. The moderator clarified the meanings of weaning foods, functional foods, and functional weaning foods by providing participants with a card containing definitions (Figure 1). Data on socio-demographic characteristics of participants, including their age, highest level of education, number of



## Weaning

The weaning process begins the first-time baby takes food from a source other than breast milk. **Weaning foods** are given to a baby who is going from a milk-based diet to solid foods. They can be made at home or purchased in the market. Some weaning foods are:

- puréed or well-mashed cooked vegetables, such as potato, sweet potato, butternut squash, parsnip, carrot, courgette, broccoli or cauliflower
- fruit purée, such as ripe cooked apple, pear, mango or papaya or mashed fruit such as ripe avocado or banana
- baby rice, baby cereal, baby biscuits

**Functional foods** are foods that provide health benefits beyond basic nutrition. They contain bioactive components and ingredients that provide additional health and developmental benefits.

Examples of functional foods include:

- food fortified with additional nutrients (labelled fortified products), such as fortified with vitamin C, vitamin E, folic acid, zinc and calcium;
- food with additional new nutrients or components not normally found in a particular food (labelled enriched products), like probiotics or prebiotics;
- food from which a deleterious component has been removed, reduced or replaced by another with beneficial effects (labelled altered products), for example, fibres as fat releasers in meat or ice cream;
- food in which one of the components have been naturally enhanced (labelled enhanced products), for example, increased omega-3 content.

**Functional weaning foods** are weaning foods that have functional properties and can provide health benefits beyond basic nutrition.

**Figure 1.** Example of card containing definitions.

dependents, occupation, and monthly income were also collected prior to the commencement of the session.

The focus group discussion guide (Table 1) was used to facilitate each session. Physical examples of commercial weaning food products that are currently available in the market were also provided to stimulate the discussion. Participants were asked to share their honest opinions, thoughts, and experiences and told there were no right or wrong answers. The questions aimed to better understand parents' attitudes and beliefs about functional weaning food products. Participants were encouraged to openly discuss their responses until no further views were expressed. Each session was recorded using two audio recorders and was approximately of one hour in duration. At the end of the focus groups, RM30 (US\$7.5) was given to each participant.



## **Data analysis**

All the discussion from the focus groups were transcribed verbatim in Malay and translated into English by the moderator, with codes replacing participant names to ensure anonymity. The transcripts were checked against the audio tapes for accuracy and a consultative process of back-translation was conducted by a reliable native Malay speaker to ensure the translated transcripts captured the local language in an accurate manner. All transcribed data were coded using the qualitative software package NVivo 11 (QSR International Pty Ltd).

The purpose of the data analysis was to capture key, higher order themes as opposed to seeking deeper meaning (Smith, Flowers, & Larkin, 2009) or engage in theory development (Strauss & Corbin, 1990). The focus groups transcripts were analyzed using thematic analysis deductive-semantic approach (Braun & Clarke, 2006) and was an appropriate approach for the present study as TPB provided a framework for the identification and coding of themes. Phases of thematic analysis by Braun and Clarke (2006) were used as a guide in analysing the transcripts. In the first phase, the researchers familiarized herself with the data by rereading it and noting down initial ideas. Then, initial coding was carried out by coding interesting features of data in a systematic fashion across the entire data set and collating data relevant to each code. Each data item was given equal attention in the coding process. First, broad descriptive themes were identified and coded into three distinct categories according to the TPB Model. These categories constitute an individual's behavioral intention in purchasing functional weaning foods. Categories of analysis consisted of behavioral beliefs (those beliefs which pertained to influence an individual's attitude toward functional weaning food product), normative beliefs (an individual's consideration of the social pressure to purchase/not purchase functional weaning food products based on the influences of others) and control beliefs (an individual's perceived efficacy in their ability to purchase functional weaning food products). This coding method has also been previously utilized by Patch, Tapsell, and Williams (2005) and Nolan-Clark et al. (2011), who likewise coded their qualitative data into three distinct categories of the TPB model that constitute an individual's behavioral intention with regard to functional food products. Next, coding was based on consideration of similarities and differences and relationships between themes and, therefore, refined into key themes (White et al., 2015). The analysis considered not only the frequency with which something was raised but also the extent to which participants in the group had elaborated or extended upon the issue (White et al., 2015). This process continued such that data were coded and recoded to accommodate new and emerging themes and subthemes until no new themes resulted (Strauss, 1987). All coding was done by the lead author, which meant that inter-rater bias was not an issue. Identified

themes were discussed with members of the research team until a consensus was reached regarding the key thematic findings.

## Results

### Participants

Seven focus groups ranging size from 5 to 10 participants for each focus group were conducted. Six sessions were held on three university campus and one session was held in a private company. The study group population (44 participants; female = 30, male = 14) was predominantly mothers, aged between 23 and 52 years old (mean = 30–39 years old) and ranged from first time expectant parents to parent with seven children (mean = 2 children). A description of each focus group and its participants are given in [Table 2](#).

### Findings

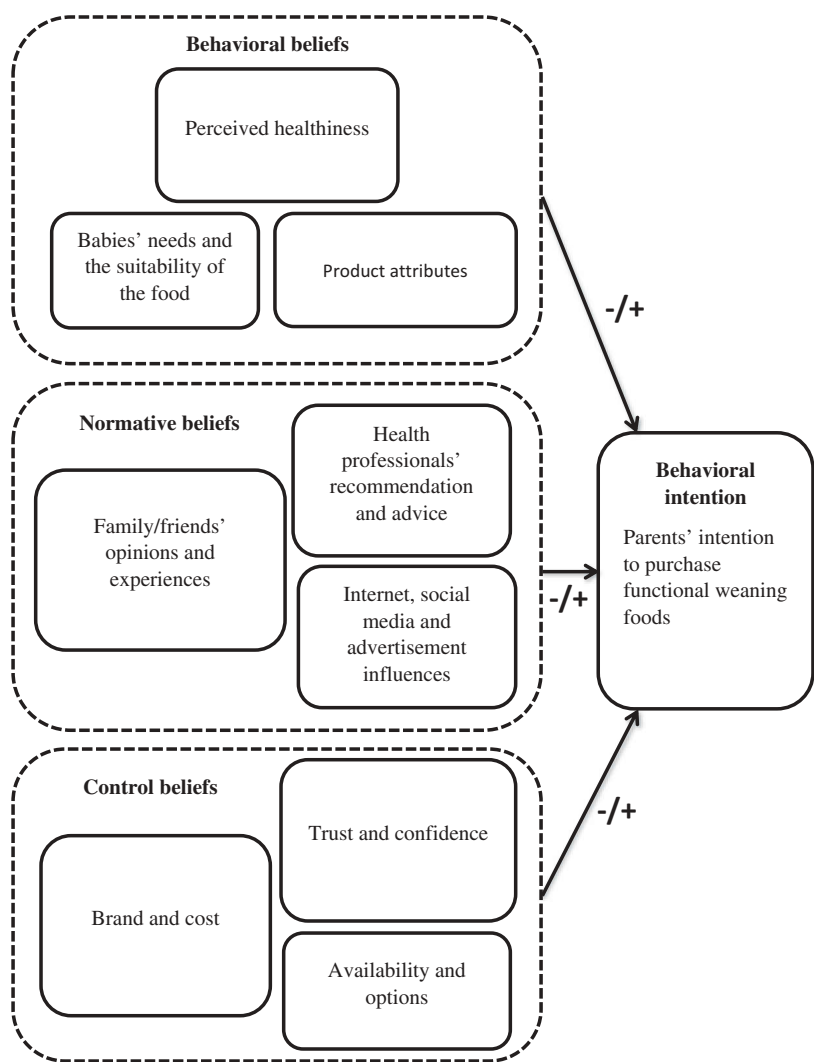
The key themes identified from the focus group data were grouped into three main TPB categories, behavioral beliefs, normative belief, and control beliefs. [Figure 2](#) shows the result of focus group discussions indicating the purchase intention of functional weaning food product. [Table 3](#) provides a summary of

**Table 2.** Profile of the Malaysian Focus Groups Participants ( $n = 44$ ).

Characteristic		%	FG1 (EM-5)	FG2 (EM-7)	FG3 (EM-6)	FG4 (EM-6)	FG5 (EM-5)	FG6 (PM-10)	FG7 (PM-5)
Gender	Female	68	5	6	2	6	2	5	4
	Male	32	0	1	4	0	3	5	1
Age	19–29	30	1	1	2	3	1	5	-
	30–39	59	4	5	4	3	2	4	4
	40–49	9	-	1	-	-	1	1	1
	50–59	2	-	-	-	-	1	-	-
Child dependants	Pregnant	9	1	-	-	1	-	2	-
	1 infant	38	2	3	2	3	2	5	-
	2 children	30	1	2	1	1	3	2	3
	> 2 children	23	1	2	3	1	-	1	2
Education	SPM	11	-	-	-	1	4	1	-
	Certificate	2	-	-	1	-	-	-	-
	Diploma	25	1	-	5	2	1	2	-
	Bachelor	25	-	-	-	2	-	7	2
	Master	30	4	6	-	1	-	-	1
	PhD	7	-	1	-	-	-	-	2
Monthly Income (RM)	Undisclosed	2	-	-	-	-	-	1	-
	1000–1999	23	-	-	-	4	3	2	1
	2000–2999	16	1	-	1	1	-	3	1
	3000–3999	21	-	1	4	1	1	2	-
	4000 and above	38	4	6	1	-	1	2	3

FG1-7 denotes the focus group discussion number.

(EM: East Malaysia; PM: Peninsular Malaysia;  $n$ : number of participants).



**Figure 2.** Determinants of functional weaning food purchase intentions. Overview of emergent themes across Theory of Planned Behavior categories and arrows indicate the influence of one category to another.

the categories, themes, and example quotations for each TPB beliefs of functional weaning food purchase.

## Discussion

This is the first published study, to our knowledge, that qualitatively explores parental intention in purchasing functional weaning foods where parents that shared their opinions in the focus groups had purchased commercial weaning foods with seven parents (currently pregnant or have a baby aged not more than 6 months old) intending to purchase commercial weaning foods in the future.

**Table 3.** Functional Weaning Foods Purchase. Categories, Themes and Example of Quotations of Beliefs Across the Full Sample ( $n = 44$ ) Identified by Focus Group Number (FG1-7).

Categories	Themes	Example quotations
Behavioral beliefs	<b>Perceived healthiness</b>	<p>"I go for the product that stated good for digestion. The most important benefit is for his tummy, can ease clean digestion." (FG1)</p> <p>"The food product has the health benefits that we look for. I always prefer mental development." (FG7)</p> <p>"If I see something good in that product, I would go for it." (FG3)</p>
	<b>Product attributes</b>	<p>"Because we like to travel, we will choose small packaging. The small packs are easy to carry. If I buy a big can, then I will just buy the refill pouch and refill it at home. That one is for home usage." (FG2)</p> <p>"We want the prebiotic but it is too sweet. If possible, the manufacturer should reduce sugar content." (FG1)</p> <p>"My children like it as they prefer sweet things and it's delicious." (FG3)</p>
	<b>Babies' needs and suitability of the food</b>	<p>"The child is the key factor. As long as he's comfortable with the product, I will keep buying that food product." (FG6)</p> <p>"I will buy based on the need. The necessity as well, do we need it." (FG3)</p> <p>"Since my baby is lactose intolerant, I have to check the content of the product before purchasing it." (FG6)</p>
Normative beliefs	<b>Family/friends' opinions and experiences</b>	<p>"If somebody used it, and it is proven good, I would buy it even though a bit expensive. We want more for our kids." (FG3)</p> <p>"I will ask my family or friends that have used the products. I wouldn't buy right away." (FG2)</p> <p>"I will get the influence from my friends. Since they have the experience or the child is sick and they use the products, then we will also try the products." (FG5)</p>
	<b>Health professional recommendation and advice</b>	<p>"We always refer to the paediatrician. If let's say he has diarrhoea, they always suggest giving food with probiotics." (FG7)</p> <p>"When the specialist recommends it, it will definitely influence my purchase." (FG4)</p> <p>"It's the same case like medicine, the doctor advises to take this and we obey, so when the doctor suggests food to eat if my kid has health problems, of course, we buy it." (FG3)</p>
	<b>Internet, social media and advertisement</b>	<p>"If we have any question about the product, we will ask on social media where there is a group of parents. We can read their answers and testimonials in that group. So from there, we can see which product is good or not." (FG6)</p> <p>"I try to find official information, not the kind that people just copy and paste on social media. Not my cup of tea." (FG3)</p> <p>"I believe social media. For example, 1 product has an issue that will cause harm if children consume a lot, for few years, I didn't buy that for my kid, well, not as often as before." (FG1)</p>
Control Beliefs	<b>Trust and confidence</b>	<p>"Usually, if it is available in the supermarket I do believe the product label and health claim." (FG3)</p> <p>"They can't simply claim anything since we have a specific department on food products, to check legal and illegal ingredients. In my opinion, I believe it as long as there is no banned from the Ministry of Health." (FG5)</p> <p>"They can just claim anything. They just want to promote and sell their products." (FG4)</p>
	<b>Brand and cost</b>	<p>"I will compare the price too. It depends on at that time since we must check our budget too. If there is not much difference in price, then I will buy." (FG1)</p> <p>"Number one factor of my purchase is the branding because branding means we trust their products." (FG4)</p> <p>"I buy if I'm familiar with the brand and if it is not too expensive." (FG3)</p>
	<b>Availability and options</b>	<p>"The products are easy to get, plenty of choices to choose from and available in most supermarkets." (FG5)</p> <p>"It is hard to get. There are certain supermarkets only that sell so I usually buy from a shop that sells baby items; everything is there. Not much variety really. So, when we find it; we buy a lot." (FG7)</p> <p>"Sometimes I purchase online since there are more options online than here in the supermarket." (FG4)</p>

An additional strength of this study was the inclusion of parents (father or mother) from different age groups, ethnicities, socioeconomic background, and from two different locations. This heterogeneity allowed for the collection of information about a wide range of attitudes and beliefs on functional weaning foods.

### **Attitudes toward functional weaning food**

*“These food products are good for children to consume especially to get additional nutrients in their diet. This product helps to complete their diet.” (FG1)*

*“The product is handy when travelling. For example, we buy the biscuits, and all the nutrients are inside. We don’t have to bring a rice cooker or thermos around.” (FG5)*

*“Too much sugar. We don’t want to give food product with high sugar content because I’m scared my child will be hyperactive.” (FG1)*

When discussing functional weaning foods, parents’ responses frequently focused on perceived healthiness. As the products contain health benefits or health properties, parents positively believed that the product would be good for their babies. Parents are becoming aware of healthy living and would look for products that appear to offer health benefits for their babies. Some of the parents stated that they usually purchase products that promote brain development or digestive balance as this will help in the development and growth of their babies. In-line with previous studies (Annunziata & Vecchio, 2011; Urala & Lähteenmäki, 2003), the current study showed that the key role the perception of a health benefit played in determining the shoppers’ attitudes toward functional food. These parents seem to have knowledge of the perceived health benefit of functional weaning foods that encouraged them to purchase them for their baby.

One of the positive attributes of functional weaning foods was convenience. Parents mentioned that they were not only convenient away from home but also these products were used at home frequently. Functional weaning foods were easy to carry and use especially while travelling and they contained what was needed by their baby. These results were consistent with the previous studies by Maslin et al. (2015) and Synnott, Bogue, and Edwards et al. (2007) who reported that commercial weaning foods contain what their infants need and were chosen mainly for convenience purposes which includes times when the rest of the family was having a meal not perceived as suitable or to combine with home-cooked foods or as a snack, or when there was a lack of time to prepare food due to being occupied with work or caring for other children.

Other attributes noted by the parents were taste and the ingredients in the product. Although functional weaning foods can help to completed babies’ diet, six parents were concerned about the ingredients in the product especially their sugar content. They were worried about unnecessary sugar and preferred no

added sugar products. Based on National Health Service UK (2012), the current complementary feeding advice discourages the addition of sugars to baby food in order to establish lower thresholds for sweet tastes and, additionally, there are strict regulations on the amounts and types of sugars used in baby food manufacturing (European Commission, 2006). Parents were also keen to know the other ingredients present in commercial weaning food products as a few of the infants had allergies or food intolerances.

### **Important referents and influences**

*“As for me the husband, my wife always explains to me this and that. Since I got the feedback based on my experience shopping with my wife, it influences me.” (FG5)*

*“We read a few blogs, compare notes on trustworthy information and also refer to medical and nutrition website for information validity.” (FG4)*

*“I will only purchase a product that I always saw in the advertisement. Usually, the famous one we don’t feel hesitates to purchase.” (FG5)*

When questioned on who influenced their decision to purchase functional weaning foods, family and friends were the most important influencer (positive or negative testimonials). These results were consistent with other research that found family and friends’ opinions were considered as one of the top determinants of purchasing formula milk in Malaysia (Yee & Chin, 2007). As new (first-time) and inexperienced parents do not have much experience of, or information on, functional weaning food product, families and friends who had past experiences with their own children were viewed as being good sources of information as they could share their knowledge and give product reviews. The fathers in this study stated that they usually referred to their wives before purchasing commercial weaning food products and they also made an effort to gain knowledge of products beneficial for their children. Only five parents did not follow advice from their relatives as in these instances they believed that the advice was old and incorrect. This last finding is in line with a previous study by Synnott et al. (2007) where parents in Sweden, Spain, and Germany were not significantly influenced by advice on infant feeding from relatives due to the out-dated advice and the provision of too many other sources of information.

Other supportive referents were health professionals where parents in this study noted that they were able to confirm the credibility of the information and suitability of functional weaning food products for their infant. This is due to the parents who were worried providing the wrong type of foods may cause adverse reactions in an infant. Seventeen parents reported that the advice from a health professional was a strong normative influence regarding weaning foods. This result was also consistent with earlier studies (Hiddink, Hautvast, Van Woerkum, Fieren, & Van’t Hof, 1997; Maslin et al., 2015).

Some parents were sceptical of health practitioners recommending functional weaning foods and wanted independent scientific research regarding the efficacy of these products so that they could make their own judgements. Nonetheless, when the health professional recommended them to purchase, they would follow the advice and purchase the product. Previous consumer research regarding perceptions of functional dairy products indicates that physicians and health professionals were regarded as being the most credible source of information regarding functional dairy foods (Grunert, 2005). However, six parents were not influenced by the doctor as they were given so many different views, that they no longer followed the advice of health professionals.

The importance of information in the media, such as advertisement, social media, and the internet was also discussed. Most parents were not affected by information in social media as they believed the information was not trustworthy. However, social media influenced seven parents negatively as it affects their purchase of a particular product as they believed a negative post that was shared on social media. In conclusion, social media may have some effect on purchase decision but most of the parents indicated that they would carry out additional research and refer to other reliable sources. This finding is in agreement with Maslin et al. (2015), who stated the parents get as much information as they need online using the internet where they carry out research by reading parents' blogs, product reviews or company's website. A few parents reported feeling disbelieving and doubtful to purchase functional weaning foods based on the advertisement, especially for a new product. This finding is consistent with Nolan-Clark et al. (2011), who stated that participants were highly sceptical of the food industry and unlikely to purchase functional dairy foods based on advertising messages.

### ***Facilitating and inhibiting factors to purchase***

*"Price is not my concern. I don't mind about the price when it is for my baby." (FG6)*

*"Sometimes there are two products; two products that are more or less the same, but the branded product is well-known and familiar. So, we prefer, say brand A compared to brand B that we don't know how it is yet." (FG7)*

*"The label stated on certain health claims, but I do not believe that and it is doubtful." (FG2)*

Brand and cost were frequently reported as one of the factors supporting or discouraging a parent's decision to purchase functional weaning foods. Parents were found to be brand loyal or to only purchase brands that they were familiar with. These results are consistent with Yee and Chin (2007) where parents in Malaysia were found to have quite a high



level of brand loyalty as 70.7% of them had no experience at all with other brands in purchasing formula milk products. This is because parents will not switch to other brands when the particular brand is suitable for their babies. However, some parents tend to switch to the cheaper product but with similar quality as time goes on aiming for value-for-money products. Nevertheless, more than half of the parents were not concerned about the price if they could still afford it. These findings were in contrast with previous studies (Annunziata & Vecchio, 2013; Ares et al., 2011; Frewer, Scholderer, & Lambert, 2003) where premium price assigned to functional foods is often considered a barrier to purchasing. However, the current results showed that parents were not that worried about spending more on functional weaning foods and this is consistent with study by Phuah, Rezai, Mohamed, and Shamsudin (2012) where consumers who think that functional food is not expensive are more willing to pay for functional food than consumers who believe functional food is too expensive given their claimed health benefits. Parents in this study believed that they should provide the best product for their babies' growth at any cost.

Trust and confidence in functional weaning food products were also important factors influencing the intention to purchase functional weaning foods. Parents stated that they had concerns about much they could trust health claims as they were not convinced that these products actually contained the additional ingredients advertised or that addition of such ingredients would have any influence on infant' health status. These results are similar to findings obtained in Nolan-Clark et al. (2011); Annunziata and Vecchio (2013); and Annunziata et al. (2015) that trust and confidence on health claim and ingredients label played a key role in guiding purchasing decisions for functional foods helping consumers to make better-informed food choices. Nonetheless, 13 parents believed that the products would provide what is claimed on the label to their baby. Three parents noted that they did not read food labels carefully, or check the ingredients or health benefits before purchase.

The availability of the products and variety of options were also influencing the purchase of functional weaning foods. Access to functional weaning food was perceived to be a barrier to their purchase as half of the participants felt that a broad range was not readily accessible in all locations. Due to this, parents have no choice but to purchase what is available at the time. Nevertheless, three parents purchase babies food products in a specialty shop for babies and two parents purchase online. These results are in accordance with a previous study in Italy (Annunziata & Vecchio, 2011) indicating that availability and limited range could be considered the main obstacles to purchasing these products.

### **Intention to purchase**

When participants were asked whether they would purchase functional weaning food over the next month, the responses were mixed. Half of the parents intended to purchase as they believed that functional weaning foods were good for their babies regardless of if they needed it or not. The other half of the parents indicated some intent to purchase but not on a regular basis and only if an exceptional circumstance required it (e.g. if the child fell sick or if the family was travelling). All three TPB components appeared to conceptually relate to intention to purchase functional weaning food products.

### **Limitations and future research**

Some limitations of the current paper and opportunities for future research are worth mentioning. First, the study considers a specific product category, functional weaning foods, so the findings could be different for different product categories. Additionally, future researchers could compare parents who prefer and do not prefer functional weaning food products to examine the different characteristics of these two groups and how their attitudes and behaviors differ for both functional weaning foods and conventional weaning food products. Second, a longitudinal approach is suggested as part of the research methods for further research to ascertain changes of attitude and purchase intention. Such an approach would be very useful in observing the reactions of parents who intend to purchase more functional weaning food products and could also help understand how the behavioral intentions and attitudes are developed and influenced. Finally, findings from this exploratory study should be interpreted with care due to the relatively small sample size of participants. Thus, results are not intended to reflect views of the general population of Malaysia. Future studies may include samples from more diverse demographic populations for more informed findings.

### **Conclusions**

The conclusions suggest that all three TPB components appear to influence on functional weaning food purchasing behavior. The aims of this study were to identify the attitudes and behaviors' of parents relating to functional weaning food purchase. The TPB provided a useful framework for exploring the major determinants of purchase intention patterns. The use of focus groups does permit the gathering of relevant qualitative data for the subject in the study and the TPB model and its measures were suitable as a framework to guide questioning and analysis.

Overall, favorable attitudes in relation to functional weaning food products in terms of their contribution to the diet and health effects were

observed. This was in addition to other positive attributes that participants highlighted in relation to these products, such as convenience. Parents appeared confident in their ability to incorporate functional weaning foods into their children's diets. Normative beliefs regarding functional weaning food products indicated that parents were amenable to the advice provided by important referents and influences when seeking information on this product. Parents appeared to be willing and eager to gain more knowledge before purchasing and feeding these types of foods to their children. Although parents seemed able to read labels and health claims to identify appropriate products for their children, this study provided some initial evidence that nutrition education or education campaigns regarding weaning foods could favorably influence control beliefs. These control beliefs may then translate to an improvement in confidence and trust and eventuate in further purchase of these types of food products. Hence, marketers and the government might consider providing consumers with appropriate or relevant information to help them make satisfactory food purchases. The government could create a favorable environment by addressing what nutritional contents are present in weaning foods and how these nutritional contents can help the baby grow healthily.

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